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THE  
UNIVERSITY OF MINNESOTA  
BULLETIN

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College of Education



Volume X.

August 20, 1907.

No. XII.

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THE REGISTRAR,

The University of Minnesota,

Minneapolis, Minnesota.

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# The University

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The University of Minnesota comprises the following named colleges, schools, and departments:

THE GRADUATE SCHOOL

THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS

THE SCHOOL OF MINES

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY

THE COLLEGE OF EDUCATION

THE UNIVERSITY SUMMER SCHOOL

THE DEPARTMENT OF AGRICULTURE

    The College of Agriculture

    The School of Agriculture

    Short Course for Farmers

    The Dairy School

    The Crookston School of Agriculture

THE COLLEGE OF LAW

THE COLLEGE OF MEDICINE AND SURGERY

THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY

THE COLLEGE OF DENTISTRY

THE COLLEGE OF PHARMACY

The Regents of the University have also entrusted to their charge

    The Experiment Stations:

        The Main Station at St. Anthony Park

        The Sub-Station at Crookston

        The Sub-Station at Grand Rapids

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

In the COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS, there is a four-year course of study leading to the degree, Bachelor of Arts. The work of the first year is elective within certain limitations as to the range of subjects from which the electives may be chosen. The remaining work of the course is entirely elective, with the provision that a certain number of long courses be selected. The course is so elastic that it permits the student to make the general scope of his course classic, scientific or literary, to suit his individual purpose.

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS offers courses of study, of four years each, in civil, mechanical, electrical and municipal engineering, leading to the degrees of Civil, Mechanical, and Electrical Engineer. This college offers a four-year course of study in science and technology, leading to the degree of Bachelor of Science, with an additional year leading to the engineer's degree in any one of the various lines offered in the college. This college also offers graduate work leading to the degree, Master of Science.

THE SCHOOL OF MINES offers four-year courses of study in mining and metallurgy upon completion of which the degrees, Engineer of Mines and Metallurgical Engineer, are conferred.

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY, leading to the degrees, Bachelor of Science in Chemistry, and Bachelor of Science in Chemical Engineering, offers two courses of study of four years each in analytical and applied chemistry.

THE COLLEGE OF EDUCATION receives students who have completed two years of college work, and offers them a three-year course leading to the master's degree. At the end of the second year students may receive the bachelor's degree and the University teacher's certificate. Graduates of other colleges, who have pursued an equivalent course in education may enter for the master's degree.

THE GRADUATE SCHOOL gathers into a single organization and unites for the purposes of administration all the activities of the University in all its schools and colleges in so far as they relate to advanced instruction offered for the second or higher degrees, viz.; Master of Arts and Doctor of Philosophy conferred for advanced, non-technical study; Master of Science and Doctor of Science for technical study; Master of Laws and Doctor of Civil Law for advanced legal studies. The privileges of this school are in general open to all Bachelors of Arts, of Science, pure and applied, and of Laws, from reputable colleges and universities having courses substantially equivalent to those at this University.

THE UNIVERSITY SUMMER SCHOOL is organized for a six weeks' session in June and July under the direction of the State Department of Public Instruction. In the elementary section courses are given for teachers in all the common school branches and in preparation for the state teacher's certificates. In the college section courses are given for high school teachers and in preparation for the state professional certificate. Students who desire University entrance credits and credits toward the bachelor's degree may secure these by pursuing not more than two full courses at each session.

SPECIAL COURSES. In each of the Colleges, students of mature age and adequate preparation are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

EXTENSION LECTURES. Professors in the University are prepared to give a limited number of extension lectures from time to time. For subjects,

speakers, terms and dates, application should be made to the Chairman of the Committee on University Extension.

THE COLLEGE OF AGRICULTURE offers a four-year course in agriculture. The degree of Bachelor of Science, in Agriculture, is conferred upon completion of the course. Students in this College may specialize along the line of forestry or of home economics and secure the degree, Bachelor of Science (in Forestry, or in Home Economics).

THE SCHOOL OF AGRICULTURE offers a three-year course of study and is a training school for practical farm life and in domestic economy. The College of Agriculture is open to graduates of this School who have completed the fourth year of work required for admission to the college.

*The Dairy School* offers practical instruction in dairying, specially designed for those who are actually engaged in the manufacture of butter and cheese.

*The Short Course for Farmers* is designed to be of the greatest help possible to those actually engaged in farming.

*The Crookston State School of Agriculture* offers a course of study quite similar to that given in the School of Agriculture.

THE COLLEGE OF LAW offers a three-year course of instruction leading to the degree of Bachelor of Laws. Graduate work leading to the degrees, Master of Laws, and Doctor of Civil Law, is offered. An evening class is provided in this college.

THE COLLEGE OF MEDICINE AND SURGERY, AND THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY offer four-year courses of study, of nine months each. Upon completion of either of the prescribed courses the degree, Doctor of Medicine, is conferred.

In the Colleges of Science, Literature and the Arts, of Medicine and Surgery, and of Homeopathic Medicine and Surgery, there has been established a combined course of six years, leading to the degrees, Bachelor of Science, and Doctor of Medicine.

THE COLLEGE OF DENTISTRY offers a three-year course of study, of nine months each. Upon completion of the prescribed course the degree of Doctor of Dental Surgery is conferred.

THE COLLEGE OF PHARMACY offers a two or three-year course of study leading to the degree of Pharmaceutical Chemist. This college also offers graduate work leading to the degrees, Master of Pharmacy and Doctor of Pharmacy.

# The Board of Regents

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 Secretary of the Board.

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## THE UNIVERSITY

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ERNEST B. PIERCE, B. A., *Registrar*

JAMES T. GEROULD, B. A., *Librarian*

C. D. DECKER, *Purchasing Agent*

## THE COLLEGES

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GEORGE F. JAMES, Ph.D., *Dean of the School of Education*

HENRY T. EDDY, C.E., Ph.D., LL.D., *Dean of the Graduate School*



# CALENDAR FOR 1907-1908.

1907

1908

## JULY

S.	M.	T.	W.	T.	F.	S.
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

## AUGUST

..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
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## SEPTEMBER

1	2	3	4	5	6	7
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29	30	..	..	..	..	..
..	..	..	..	..	..	..

## OCTOBER

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20	21	22	23	24	25	26
27	28	29	30	31	..	..
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## NOVEMBER

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24	25	26	27	28	29	30
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## DECEMBER

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29	30	31	..	..	..	..
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## JANUARY

S.	M.	T.	W.	T.	F.	S.
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## FEBRUARY

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## MARCH

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## APRIL

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## MAY

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31	..	..	..	..	..	..

## JUNE

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28	29	30	..	..	..	..
..	..	..	..	..	..	..



# University Calendar, 1907-1908

## THE UNIVERSITY YEAR

The University year covers a period of thirty-eight weeks beginning on the second Tuesday in September. Commencement day is always the second Thursday in June.

Classes will meet for the first time Tuesday, September 17th. Monday, Wednesday, and Friday classes will meet during the first half of the regular periods of recitation, and the Tuesday, Thursday, and Saturday classes will meet during the second half of the period. Announcements and assignments of work will be made by instructors at the time specified.

### FIRST SEMESTER

SEPTEMBER	9 M	Entrance examinations and registration	
	10 T	Entrance examinations and registration	
	11 W	Entrance examinations and registration	
	12 Th	Entrance examinations and registration	
	13 F	Entrance examinations and registration	
	14 S	Examinations end and registration completed.....	1 w
	17 T	Classes called for regular work (First College classes organized, 1869)	
	21 S	.....	2 w
	28 S	.....	3 w
OCTOBER	5 S	.....	4 w
	12 S	.....	5 w
	18 F	Governor John S. Pillsbury died, 1901	
	19 S	.....	6 w
	26 S	.....	7 w
NOVEMBER	2 S	.....	8 w
	9 S	.....	9 w
	16 S	.....	10 w
	23 S	.....	11 w
	28 T	Thanksgiving Day. Recess three days	
DECEMBER	30 S	.....	12 w
	7 S	.....	13 w
	14 S	.....	14 w
	21 S	Holiday recess begins (no classes).....	15 w
	25 W	Christmas Day	
JANUARY	1 W	New Year's Day	
	7 T	Work resumed in all departments	
	11 S	.....	16 w
	18 S	.....	17 w
	25 S	Semester examinations VII and VIII hour classes.....	18 w
	27 M	Semester examinations I hour classes	
	28 T	Semester examinations II hour classes	
	29 W	Semester examinations III hour classes	
	30 Th	Semester examinations IV hour classes	
	31 F	Semester examinations V hour classes	
FEBRUARY	1 S	Semester examinations VI hour classes	
	4 T	Second semester begins—Classes called for regular work	
	8 S	.....	1 w
	12 W	Lincoln's birthday—Holiday	

	15 S	.....	2 w
	18 T	University Charter, 1868	
	22 S	Washington's birthday—Holiday.....	3 w
MARCH	29 S	.....	4 w
	7 S	.....	5 w
	14 S	.....	6 w
	21 S	.....	7 w
	28 S	.....	8 w
APRIL	4 S	.....	9 w
	11 S	.....	10 w
	18 S	.....	12 w
	25 S	.....	13 w
MAY	2 S	.....	11 w
	9 S	.....	14 w
	16 S	.....	15 w
	23 S	.....	16 w
	30 S	Semester examinations VII and VIII hour classes.....	17 w
JUNE	1 M	Semester examinations I hour classes	
	2 T	Semester examinations II hour classes	
	3 W	Semester examinations III hour classes	
	4 Th	Semester examinations IV hour classes	
	5 F	Semester examinations V hour classes	
	6 S	Semester examinations VI hour classes	18 w

## COMMENCEMENT WEEK, 1908

SUNDAY	June 7	Baccalaureate Service
MONDAY	June 8	Senior Class Exercises
TUESDAY	June 9	Phi Beta Kappa Address. Senior Promenade
WEDNESDAY	June 10	Alumni Day
THURSDAY	June 11	Commencement Day—The Thirty-sixth Annual Commencement
FRIDAY	June 12	Summer Vacation Begins

## PROGRAM OF ENTRANCE EXAMINATIONS

MONDAY,	September 9,	9 A. M.	3 Botany
			3 Zoology
			1 Astronomy
			3 Geology
		2 P. M.	2 American Government
			2 Political Economy
TUESDAY,	September 10,	9 A. M.	2 History
			5 Physics
		2 P. M.	4 Chemistry
			3 Physiography
WEDNESDAY,	September 11,	9 A. M.	1 English
		2 P. M.	1 German
			1 French
			1 Latin
			1 Scandinavian
THURSDAY,	September 12,	9 A. M.	6 Elementary Algebra
			3 Commercial Geography
		2 P. M.	6 Higher Algebra
FRIDAY,	September 13,	9 A. M.	6 Plane Geometry
		2 P. M.	6 Solid Geometry

1 Folwell Hall, 2 Library Building, 3 Pillsbury Hall, 4 Chemical Laboratory, 5 Physics Building, 6 Mechanic Arts Building

## PROGRAM OF CONDITION EXAMINATIONS

TUESDAY,	September 10,	9 A. M.	English, Rhetoric
		2 P. M.	Mathematics, Philosophy, Psychology
WEDNESDAY,	September 11,	9 A. M.	Animal Biology, Botany, Geology, Physics
		2 P. M.	Astronomy, Chemistry, Economics, Drawing
THURSDAY,	September 12,	9 A. M.	French, German, Greek, Scandinavian
		2 P. M.	History, Latin, Education, Politics

For notice of the class-rooms in which these examinations will be given, see bulletin in library building.

# The College of Education

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## FACULTY

CYRUS NORTHROP, LL. D., *President.*

GEORGE F. JAMES, Ph. D., *Dean and Professor of Education.*

A. W. RANKIN, B. A., *Professor of Education.*

FLETCHER HARPER SWIFT, Ph. D., *Assistant Professor of Education.*

JOHN F. DOWNEY, M. A., C. E., *Professor of Mathematics.*

JOHN G. MOORE, B. A., *Professor of German.*

CHRISTOPHER W. HALL, M. A., *Professor of Geology and Mineralogy.*

JOHN C. HUTCHINSON, B. A., *Professor of Greek.*

MARIA L. SANFORD, *Professor of Rhetoric and Elocution.*

CHARLES W. BENTON, M. A., Litt. D., *Professor of French.*

HENRY F. NACHTRIEB, B. S., *Professor of Animal Biology.*

FREDERICK S. JONES, M. A., *Professor of Physics.*

WILLIS M. WEST, M. A., *Professor of History.*

J. J. FLATHER, Ph. B., M. M. E., *Professor of Mechanical Engineering.*

GEORGE P. FRANKFORTER, Ph. D., *Professor of Chemistry.*

FRANCIS P. LEAVENWORTH, M. A., *Professor of Astronomy.*

JOSEPH BROWN PIKE, M. A., *Professor of Latin.*

SAMUEL G. SMITH, Ph. D., LL. D., *Professor of Sociology.*

NORMAN WILDE, Ph. D., *Professor of Philosophy and Psychology.*

JOHN HENRY GRAY, Ph. D., *Professor of Political Science.*

WILLIAM A. SCHAPER, Ph. D., *Professor of Political Science.*

FREDERIC E. CLEMENTS, Ph. D., *Professor of Botany.*

EDWARD VAN DYKE ROBINSON, Ph. D., *Professor of Economics.*

FRANCES S. POTTER, M. A., *Professor of English.*

LOUIS J. COOKE, M. D., *Director of Gymnasium.*

JAMES BURT MINER, Ph. D., *Assistant Professor of Psychology.*

CARLYLE M. SCOTT, *Assistant Professor of Music.*

D. D. MAYNE, *Principal of the School of Agriculture.*

### INSTRUCTORS

MARGARET BLAIR, *Domestic Art.*

ANNA M. BUTNER, *Physical Culture.*

HENRIETTA CLOPATH, *Drawing.*

CHARLES M. HOLT, *Education.*

....., *Machine Work.*

JUNIATA SHEPPERD, *Domestic Science.*

....., *Sloyd and Woodwork.*

## THE COLLEGE OF EDUCATION

The College of Education was authorized by a special enactment of the Legislature of Minnesota in 1905, and was established by the Regents of the University in the following year.

It offers both a practical and a theoretical training for prospective high school teachers and principals, for principals of elementary schools, for supervisors of special studies, and for superintendents of school systems.

The work of the college is not as yet fully organized, and this bulletin contains the announcement of the courses definitely arranged for the coming year, with some indication of the opportunities, which it is hoped will be afforded within a short time.

## ADMISSION

Entrance examinations are held only at the beginning of the college year. Students prevented from entering at that time may be admitted later if the circumstances justify this action. Such students are however at a great disadvantage and all students expecting to enter the college are urged to be present at the beginning of the year.

All applicants should present themselves to the Registrar, who will furnish them with application blanks and directions how to proceed with their examinations and registration. Before filling out the blanks obtained from him, applicants are advised to consult with the Dean of the College of Education in regard to their work.

## CONDITIONS OF ADMISSION

Students who have completed with credit at least two full years of college work will be admitted to the College of Education. During these two years they should have pursued one or more of the subjects which they expect to teach and in addition at least one course in general psychology. Students in the College of Science, Literature and the Arts of the University of Minnesota, who plan to enter the College of Education are advised to consult with the Dean in regard to their course of study as early as the first semester of the sophomore year.

## ADMISSION TO ADVANCED STANDING

### *I. From other colleges.*

This college accepts records from all colleges of equal rank for credit to advanced standing. All candidates for graduation must however meet the conditions established by this college as indicated in a succeeding paragraph.

### *II. From Minnesota Normal Schools.*

Graduates of the "advanced graduate course" of a Minnesota State

Normal School, who have received one year's credit in the College of Science, Literature and the Arts, and who have completed, in addition, a full year of the work required of these graduates by that college, will be admitted to the College of Education, but will not be permitted to elect either Course V, or Course VII in education. Individual graduates of either of the five-year courses of a Minnesota State Normal School will be admitted under the same regulations.

### UNCLASSED STUDENTS

Applicants who present satisfactory reasons for not taking the regular course may be admitted as unclassified students upon proof of fitness to profit by the work. The same general attainments are expected of these students as are required of those who enter the regular course. Unclassed students must take the same number of hours as regular students, except that men and women actually engaged in teaching may be allowed to enter certain classes as hearers.

### EXAMINATIONS

At the close of each semester examinations are held and students are reported as "excellent," "good", "conditioned", "passed", "incomplete", or "failed". An "incomplete" must be removed within one month from the opening of the following semester, or it becomes a "condition."

A "condition" not made up before the subject is offered again becomes a "failure," subject to rules governing failures. "Failures" must be pursued again in class. A student who at any time is deficient in more than half a year's work loses his class rank and is regarded as a member of the next lower class. Students whose absences in any term exceed four weeks in the aggregate, are not permitted to take the term examinations without special permission of the faculty.

### FAILURE TO KEEP UP WITH THE CLASS

Any student receiving conditions or failures in 60 per cent of the work the first semester shall be dropped from the rolls and shall not be allowed to re-enter the University until the opening of the following year.

Any student failing to pass in one-half of the work of any year shall not be allowed to register until reinstated by action of the faculty upon recommendation of the committee on students' work.

### FEEES

All students in the college, who are residents of the state, are charged an incidental fee of ten dollars a semester. Non-residents are charged double the fee required of residents of the state, or twenty dollars a semester. No reduction is made for late entrance or for leaving before the end of the semester. Save in the case of the first registration, the



incidental fee is increased by twenty-five cents for each day's delay in registration beginning with the first day set for recitations. The usual fees for shop work are required of students in manual training.

## COURSE OF STUDY

The College of Education offers a two-year course of study leading to the degree of Bachelor of Arts in *Education*. The preparation for teaching, which is afforded in these two years, in addition to two years of previous collegiate study, is planned to include first of all a thorough grounding in the correct use of English, both spoken and written. No student should plan to go into this work without adequate training of this kind no matter what subjects he himself plans to teach and no one will be graduated from the College of Education who has not attained a satisfactory standard in this particular.

A second element in the preparation of the future teacher is found in the courses in general and educational psychology, in the history and the organization of schools, in educational theory, and in the practice of teaching. Courses in psychology and in the history of education must be pursued by all students and additional courses are elective in the theory and the practice of elementary and of secondary teaching, in the history of secondary education, in school organization and law, and in school hygiene.

A third year of study leads to the degree of Master of Arts. The work the specific subjects which he proposes to teach. In this particular the standard in Minnesota schools is constantly rising and year by year school trustees are asking of all high school teachers more definite and adequate preparation in the subjects assigned them. This preparation is not possible unless the prospective teacher selects his subjects early in the college course and effects also a desirable and natural combination. When this is done the work required for a bachelor's degree may be arranged to give both a liberal and a special training.

A third year of study leads to the degree of Master of Arts. The work of this year includes advanced studies in education and in philosophy, and in one or more of the subjects of the secondary curriculum at the option of the candidate. The course is planned especially for those holding the degree of Bachelor of Arts who desire to prepare themselves more carefully either for high school teaching or for work as principals and superintendents. Young men and young women who propose to take up this work permanently will find it advisable to do graduate study either immediately upon receiving the bachelor's degree or after a period of practical experience in teaching.

## THE DEGREE OF BACHELOR OF ARTS IN EDUCATION

The degree of Bachelor of Arts in *Education* is granted to candidates on the following conditions:

A. The completion of college courses amounting to one hundred and twenty-six (126) credits, in addition to the required exercises in drill, gymnasium and physical culture. The courses selected must be approved by the committee in charge.

*A credit is one hour per week through one semester.*

B. At least fifteen (15) credits shall be secured in Education, including courses I and II.

C. An amount of work shall be taken in at least three departments concerned with the studies of the secondary curriculum sufficient to secure one major and two minor recommendations. Each minor recommendation will require not less than twelve (12) credits and each major not less than eighteen (18) credits in one department.

D. Each candidate for graduation must show an average of scholarship through four years of college work indicated by at least as many marks of "good" as of "pass."

## OBSERVATION AND PRACTICE TEACHING

The critical observation of good teaching and the practice of teaching under skilled supervision is a most important part of the preparation of a teacher. In connection with two courses on the practice of elementary and of secondary teaching, opportunity has been given during the past year to students of this college to observe and to report upon and to discuss the best methods of teaching employed in the public schools of Minneapolis, St. Paul and adjacent towns. For the coming year a plan has been formulated and provisionally approved for the establishment of a practice school in connection with the college, which shall give opportunity not only for more observation work, but also for some amount of practice teaching by the students of the college. A fuller statement of this plan will be issued later in the year.

## COMMERCIAL TRAINING

The rapid increase in the number of schools which are offering commercial courses, and the greater recognition now accorded to the graduates of these courses in admission to the State University, serve to emphasize the need of well trained commercial teachers.

No adequate opportunity has been given in Minnesota or indeed in most sections of the United States for preparation of this kind.

The College of Education is not in a position at present to afford the desirable facilities in full, but the attention of prospective teachers is called to the increasing demand in this direction and to the value of

courses, which are now offered in the various faculties of the University in industrial, commercial, and financial history and theory, in physical and industrial geography, and in other cognate courses.

A student, who begins now his preparation for high school teaching, may lay an adequate foundation in these courses for work of this kind, and an opportunity for a more technical preparation will be afforded later.

## MANUAL TRAINING

The increasing demand for high school teachers, who are able in addition to the handling of two or three of the ordinary high school studies, to direct the manual training work of the elementary schools, draws attention to the facilities of this kind, which exist at the University. For the present no provision is made for a special certificate in this kind of work, nor is any credit allowed for these courses toward the degree of Bachelor of Arts *in Education*.

Young men and women, however, who desire to prepare themselves for manual training work may register without credit for courses of this kind. In connection with the shopwork of the College of Engineering, opportunities are offered future manual training teachers both in wood-work and in iron-work. With these, students will find it advisable to take courses in descriptive geometry, and in mechanical drawing, and in this way they may secure a fairly satisfactory preparation for the teaching of these branches in connection with some of the regular high school studies.

## DOMESTIC ART AND DOMESTIC SCIENCE

These subjects are being added each year to the school course in an increasing number of Minnesota towns. So far superintendents and boards of education have experienced considerable difficulty in securing teachers in these lines. The larger towns and cities can engage trained teachers and supervisors, but in the smaller communities on the first introduction of these subjects, it is necessary to entrust them to teachers able to give instruction in some high school studies.

A good opportunity, therefore, lies before prospective teachers, who in addition to a preparation in the ordinary studies of the high school course will prepare for the direction of these subjects. Students, who are interested in this line of work, will be directed early in their college course in the selection of foundation work in geography, chemistry, physics and other related subjects, and will thus be prepared to elect during the last year or two the more technical instruction in domestic art and domestic science, which may be taken, although not with academic credit, in the College of Agriculture.

## NON-RESIDENT WORK

The College of Education desires to open its opportunities, as far as possible, to all the secondary teachers, principals and superintendents of Minnesota.

Outlines of work have been prepared in various lines of professional study as a guide to individual students during the school year and these courses may be continued by resident work at the University during the summer. Upon approval by the committee in charge under the direction of the faculty some of this work will be accepted for undergraduate credit and some of it toward graduate degrees in the case of properly qualified and registered students. Arrangements will be made for an examination in this work at half-yearly intervals. Students of marked ability may be able to complete a considerable part of the requirements, respectively, for the degree of Bachelor of Arts and for the degree of Doctor of Philosophy.

## LIBRARY FACILITIES

The professional library of the college contains a large selection of work on the various phases of education and is at the service not only of the students of the college, but of visiting teachers. During the coming year a text-book collection will be added covering the field of secondary schools. As soon as possible this illustrative library will be supplemented by model equipment of other kinds, thus offering concrete suggestions on questions of school furnishing and supplies.

Under certain restrictions the use of part of the professional library will presently be made possible for non-resident students.

## THE DEGREE OF MASTER OF ARTS

Graduates of the University of Minnesota and of other institutions of equal rank will be admitted to work leading after one year of study to the degree of Master of Arts, upon the usual conditions attaching to that degree. They will be expected, however, to have given considerable attention in their collegiate work to psychology, and to the history, the theory and to the practice of teaching.

Men and women actually engaged in teaching in Minnesota and possessing the bachelor's degree from a college of good rank will be allowed to pursue graduate studies *in absentia*. For non-resident students a special course is arranged with education as the major subject. Two years are required and three or more are allowed for the completion of this work.

## THE UNIVERSITY TEACHERS' CERTIFICATE

The University Teachers' Certificate is granted to all graduates of the College of Education and to those graduates of the College of Science,



Literature and the Arts, who complete one course in general psychology and three courses in education, including courses I and II, and who secure one major recommendation as qualified for teaching from a department of that college, concerned with some branch of the secondary curriculum.

### SPECIAL LECTURES

In addition to the courses announced for the College of Education, special lectures will be given from time to time, open to all students, by men closely identified with public education in Minnesota. Educational organization, ideals and methods, will be treated from the point of view of those concerned with the state department of public instruction, the inspection of state graded and high schools, the state normal schools, city schools systems, and with the conduct of schools in smaller communities.

Public lectures will be given also by men familiar with the educational conditions, experiments, and tendencies in other states.

### THE EDUCATIONAL CLUB

This organization is made up of those giving instruction in the College of Education and of students registered for advanced work. Meetings are held from time to time during the college year for the discussion of current questions in education and for reports and discussions upon recent educational literature, books, magazines and journals.

### COURSES OF INSTRUCTION.

Unless otherwise specified all courses are three credit-hour courses.

Fuller descriptions of some of the courses offered may be found in Bulletins of College of Science, Literature and the Arts, the College of Engineering, the School of Chemistry and the College of Agriculture.

### EDUCATION.

#### *I. History of Education to the Reformation* [3]

*I. Assistant Professor Swift*

Open to juniors and seniors.

An introductory study in the history of education conducted by lectures, assigned readings, discussions and reports. The purpose of the course is to arouse an interest in educational problems, to secure some perspective for use in current investigation, with some command of the facts of educational history, and some ease in the methods of historical study. An attempt is made to bring out education as one phase of civilization and to show the connection of schools with other social institutions. Attention will be given especially to an examination of the schools of Greece and of Rome, the education of the early Christian centuries, the development of the different types of schools in Medieval times, the rise of the university and of the humanistic schools of the Renaissance.

#### *II. History of Modern Education* [3]

*II. Assistant Professor Swift*

Open to juniors and seniors who have taken course I in Education.

A somewhat intensive study of the periods in the history of modern education, with special reference to the development of the various national systems of public instruction. Different types

of educational theory are considered in connection with a study of the men who first advanced them, and of the schools in which they were first put into effect. This course is a direct preparation for an understanding of the educational systems, theories, and practices of the present.

III. *Educational Psychology* [3] I or II. Assistant Professor Miner  
Open to sophomores, juniors and seniors who have had course I in Philosophy.

The study of mental development in its relation to heredity and training. Lectures and student reports on the facts and theories of childhood and adolescence with special reference to their bearing on education.

This course is announced also as course II in Philosophy.

IV. *Secondary Education* [3] I. Professor James  
Open to juniors and seniors who have had courses I and II in Education.

A study of secondary education in the United States, with such references to the secondary schools of other countries as will lead to a clearer understanding of the place and function of the high school, its curriculum, the problems of present-day importance, and the relation of the high school to other parts of the system of public instruction. The course will be conducted by lectures, reports and discussions.

V. *Practice of Elementary Teaching* [3] I. Professor Rankin

Open to juniors and seniors who have had course I in Philosophy. This course includes a consideration of the course of study of the elementary school and of the best methods of instruction. It is conducted by means of lectures, assigned readings, discussions and reports, accompanied by either observation or practice in the elementary schools under the direction of the instructor. It is planned for all students who expect to teach in the high schools or to be principals or superintendents. No credit is given in this course to graduates of Normal Schools, who have received one year's credit at the University.

VI. *Practice of Secondary Teaching* [3] II. Professor Rankin  
Open to juniors and seniors who have had course IV in Education.

This course includes lectures on the general methods of secondary teaching, assigned readings, reports and discussions, with either observation or practice of secondary teaching under the charge of the instructor. It is planned more particularly for those who expect to teach in high schools.

VII. *The Theory of Education* [3] I. Professor James  
Open to juniors and seniors who have course I in Philosophy.

An introductory course in educational theory, including a somewhat detailed study of the principles on which is based the present practice in teaching. No credit is given in this course to graduates of Normal Schools who have received one year's credit at the University.

VIII. *School Administration* [3] I. Professor Rankin  
Open to juniors and seniors.

An introductory study of school administration, conducted by lectures, reports and discussions; the organization of school systems—the work of school boards, superintendents, principals and teachers—school buildings and hygiene. This course is planned for students without any teaching experience, who hope later to do work in supervision.

IX. *School Supervision* [3] II. Professor Rankin  
Open to seniors.

An advanced course treating of the duties of school principals and superintendents, intended primarily for students with experience in teaching. (Credit will not be given for course VIII and for course IX.)



- X. Comparative Study of School Systems** [3] *II. Professor James*  
Open to seniors who have completed courses I and II in Education.  
This course deals with the school systems of Germany, France, England and the United States, with special reference to principles and methods of administration. Elementary, secondary and higher institutions are examined with emphasis varying in successive years. The course is conducted partly by lectures and partly by assigned readings, reports and discussions.
- XI. Modern Educational Theories** [3] *II. Professor James*  
Open to seniors who have had course I in Philosophy and courses I and II in Education.  
An advanced course in educational theory, dealing particularly with the contributions of Rousseau, Froebel and Herbart, special emphasis being laid upon one of these writers in each successive year.
- XII. Current Problems in Elementary Teaching** [2] *I. Professor Rankin*  
Open to seniors and graduates who have had course V in Education.  
This is a seminar course, involving a general discussion of some current problems in elementary education, one or two of which are worked out practically by the student under the direction of the instructor, through readings, the visiting of schools and through class discussions.
- XIII. Educational Classics** [2] *I. Professor James*  
Open to seniors who have completed courses I and II in Education.  
A seminar course for the reading of selected educational classics and for the detailed study of corresponding periods in educational history.
- XIV. Current Problems in Secondary Teaching** [2] *II. Professor Rankin*  
Open to seniors and to graduate students who have completed course VI in Education.  
This is a seminar course for advanced students, preferably with teaching experience, who wish to pursue a theoretical and a practical study of some current problem in connection with secondary teaching. The course will be conducted by lectures, class discussion, readings and by the visiting of schools.
- XV. Problems in School Administration** [2] *II. Professor James*  
Open to seniors and to graduate students who have completed courses I and II in Education.  
A research course for advanced students, preferably with teaching experience, who desire to take up the investigation of some question of educational administration. The course will be conducted by lectures, class discussions, assigned readings, and, when possible, by a study of actual school conditions, falling within the proposed field.
- XVI. School Hygiene** [1] *I. Professor Rankin*  
Open to seniors and to graduate students.  
This course will be conducted by text and by lectures with the cooperation of men from various other faculties of the University.

## AGRICULTURE.

- I. Elements of Agriculture.** *I. Principal Mayne*  
This course is planned to meet the increasing demand for a knowledge of the elements, at least, of agriculture on the part of graded school principals, rural school teachers, county superintendents of schools and others concerned with education in the agricultural sections of the state. The course is given at the School of Agriculture, on Tuesday and Saturday afternoons.
- II. Elements of Agriculture (continued).** *II. Principal Mayne and Assistants*  
This is a continuation of course I and is planned to give the

student some familiarity with the underlying principles and the simple processes connected with various forms of agricultural work. Tuesday and Saturday afternoons. Mr. Mayne will have the co-operation of others connected with this branch of the University. Students who are interested are advised to read the Bulletin of the School of Agriculture and to note the various opportunities which are there afforded, for all of these will be made available to some extent in connection with these courses.

## ANIMAL BIOLOGY.

### *Preliminary—I. General Zoology [3]*

*I, II. Professor Sigerfoos, Assistant Professor Oestlund and Assistants*

Textbooks, quizzes, lectures and laboratory work.

This course at least should be taken in the first or second college year by all who expect to teach the subject.

### *II. Advanced Zoology [3]*

*I, II. Professor Sigerfoos and Assistant Professor Oestlund*  
Those who wish a "major" credit in zoology should take this course during the sophomore year.

### *III. Histology [3]*

*I, II. Professor Nachtrieb and Mr. Downey*

### *IV. Comparative Anatomy of Vertebrates [3]*

*I, II. Mr. Brown*

Course III or IV may also be taken during the second college year, to be followed in the College of Education by one or more of the courses hereafter named.

### *VII. Embryology of Vertebrates.*

*I, II. Professor Nachtrieb*

### *VIII. Embryology of Invertebrates [3]*

*I, II. Professor Sigerfoos*

### *IX. Physiology [3]*

*I. Professor Sigerfoos*

### *XII. Teachers' Course [1]*

*I. Professor Nachtrieb*

This course consists of one lecture and discussion each week during the first semester on the ends to be attained through courses in general zoology and the methods and means by which such ends may be gained.

Additional courses in Animal Biology announced in the Bulletin of the College of Science, Literature and the Arts will be accepted also for credit in the College of Education.

## ASTRONOMY.

### *I. General Astronomy [3]*

*I, II. Professor Leavenworth*  
Open to those who have completed Trigonometry.

### *II. Practical Astronomy [3 or 6]*

*I, II. Professor Leavenworth*

## BOTANY.

### *Preliminary—I. General Botany [3]*

*I, II. Professor Clements and Assistant Professor Tilden*

### *II. General Plant Morphology*

*I, II. Assistant Professor Rosendahl and Mr. Huff*  
Course I, or Courses I and II, may be taken during the freshman and sophomore years by those who expect to teach Botany, to be followed in the College of Education by the courses mentioned hereafter.

### *III. Plant Physiology [3]*

*II. Professor Clements*

### *V. Taxonomy [3]*

*I, II. Assistant Professor Rosendahl*

### *VI. Cytology [3]*

*I, II. Assistant Professor Lyon*

### *XII. Teachers' Course.*

*II. Professor Clements*

This course consists of one lecture and one discussion a week during the second semester, on the objects to be secured through the high school teaching of Botany and on the methods of presentation.

Additional courses in Botany announced in the Bulletin of the College of Science, Literature and the Arts will be accepted also for credit in the College of Education.

## CHEMISTRY.

*Preliminary—I* (a) *General Chemistry* [3] *I, II. Miss Cohen*  
(b) *Advanced General Chemistry.* *I, II. Professor Frankforter*

*II. Qualitative Analysis* [3] *I. Assistant Professor Nicholson*

*III. Identification of Acids* [3] *II. Assistant Professor Nicholson*

During the first two college years I (a) or I (b) should be taken by all who expect to teach Chemistry and those who desire a "major" credit should take also courses II and III. The following courses are suggested for students in the College of Education.

*IV. Quantitative Analysis* (gravimetric) [3] *I. Professor Sidener*

*V. Quantitative Analysis* (volumetric) [3] *II. Professor Sidener*

*VI. Organic Chemistry* [3] *I, II. Professor Frankforter*

*VII. Teachers' Course* [1] *II. Professor Frankforter*

This course is arranged especially for the students in the College of Education. The course will be largely didactic with experimental work necessary to a thorough understanding of the new methods and theories. For technical courses, see catalogue of the School of Chemistry.

## DRAWING.

*Preliminary—*Students who expect to teach Drawing should take in the first two college years, courses I, II, and III, as announced in the Bulletin of the College of Science, Literature and the Arts. In the College of Education selection may be made from the following:

*IV. Historical Design* [3] *I, II. Miss Clopath*

*V. The Teaching of Drawing* [1] *I. Miss Clopath*

This course is conducted by lectures and collateral reading on the methods and educational value of drawing, as revealed through a study of the instincts and mental processes of the child.

*VI. Drawing as Related to Education* [3] *II. Miss Clopath*

Exercises in all the different kinds of art work used in the schools. Advanced work in black and white and in color.

## DOMESTIC SCIENCE AND DOMESTIC ART.

These courses cover specifically the science and the art of the home. In the reactionary movement, away from the theoretical, and toward the practical in education, the need of teachers of scientific and artistic home-making has become marked. To meet this demand the following courses have been organized:

## DOMESTIC ART.

Domestic art has to do with the very beginning of home-making, the selection of a site, the adaptation of architecture to the needs of the family, the choice of materials, colors, etc., and their relation to the surroundings, the

interior of the home, its furniture and keeping. All of these topics are viewed in both their economic and their social aspect. In addition a full course is offered in needle-work in all its branches.

*I. A Study in Textiles.*

Animal and vegetable fibres, weaves and dyes, testing fabrics for household use and personal wear, the hygienic values of various fabrics, harmony of color. This course is designed especially to assist the teaching of sewing in graded schools, and includes the preparation, explanation and making of models suited to grade work in the public schools. This course will be given upon Monday and Thursday afternoons, at the School of Agriculture.

*I. Mrs. Blair*

*II. Design and Garment Drafting.*

This course is in the design and drafting of children's and adults' garments and includes also a series of lectures upon the home. This course will be given upon Monday and Thursday afternoons at the School of Agriculture.

*II. Mrs. Blair*

## DOMESTIC SCIENCE.

Domestic science has to do with the chemistry of the table, the science of cooking, and the housewifely care of the kitchen and dining-room; household accounts, and the administration of the home upon an economical basis, are discussed in their various relations in these courses and the effort is toward system, economy and effectiveness in home management. Students who look forward to teaching are trained to assist in the teaching or supervision of this work in city schools or to have the entire charge of the work, in connection with other teaching, in the smaller high schools.

*I. Laundering and Food Economics.*

In this course the subject of domestic and commercial laundering and cleaning is first considered, with a study of removing stains, dyeing, setting colors, cleaning delicate fabrics, the use of cleaning agents, starches and bluing. By far the larger part of the semester is given to a study of food economics, with a consideration of all phases of the selection of food materials and the preparation of food. The course is conducted by means of lectures, readings, with the writing of a thesis and by full individual practical experience in all parts of the work.

\* The course is given on Wednesday and Friday afternoons at the School of Agriculture.

*I. Miss Shepperd*

*II. Management of Kitchen and Dining Room.*

(a) The kitchen, equipment, sanitation, labor saving devices, etc.  
(b) The dining room, equipment, furniture, decorations, management, etc.

(c) Household inventories, bills of fare, fancy cookery, etc.

The above course is made, as far as possible, both practical and scientific. It requires three hours of work on each of two afternoons. Students who are interested in this line are advised to read a fuller description, which will be found in the Bulletin of the School of Agriculture.

*II. Miss Shepperd*

## ECONOMICS.

*I. Elements of Economics [3]*

A thorough course in the elements of economics. The aim is to inculcate accepted doctrine, and show the nature and bearing of economic theory on present day problems. Given in each semester. Open to sophomores.

Text book, problems, lectures and discussions.

*I or II. Professor McVey*

*II. Economic Geography [2]*

Open to sophomores.

A course in geographical influences on commerce and trade together with a presentation of the growth of industry and a consideration of the development of commercial centers. Text book, lectures and special papers. Alternates with course IV.

*I. Professor McVey*



- III. *Money and Banking* [3] II. Professor McVey  
A course open to students who have had course I. Students desiring but one year's work in economics are advised to take this course following the work in elements of economics. If a longer course is desired, advanced economics should follow course III. This is an elementary course illustrated by constant reference to monetary legislation. Text books, lectures, papers and discussions.
- IV. *Modern Industrial Legislation* [3] II. Professor McVey  
A general course open to sophomores and upper classmen. A course based upon McVey's *Modern Industrialism*. This course deals with the problems and legislation arising from industrial conditions such as labor questions, trusts, monopolies, etc. Assigned topics, lectures, and collateral reading. Not given 1907-8.
- VIII. *Advanced Economics* [3] I. Professor McVey  
In this advanced course further consideration is given to selected topics from the course in elementary economics. Carver's *Distribution of Wealth* and Fisher's *Capital and Income* are used as texts, supplemented by readings and problems. Lectures, papers and discussions.
- XII. *Methods of Investigation* [1] II. Professor McVey and Mr. Gerould  
Open to juniors and seniors who have had course I. A course in methods of using libraries, collecting and organizing material, followed by the actual investigation of important questions.

For other courses in Economics, see the Bulletin of the College of Science, Literature and the Arts.

## ENGLISH LANGUAGE AND LITERATURE.

The following courses, in addition to course VI in Rhetoric, are required of all who expect a recommendation for the teaching of English:

- III. *Early English* [3] I, II. Professor Klaeber  
VI. *Chaucer* [3] I. Miss Peck, Mr. Firkins  
VII. *Spenser* [3] II. Miss Peck, Mr. Firkins  
XII. *Milton* [3] I. Professor Potter  
XIII. *Shakspeare* [3] II. Professor Potter  
XVI. *Teachers' Course in English* [1] I, II. Professor Potter

For additional courses, see the Bulletin of the College of Literature, Science and the Arts.

## FRENCH.

- Preliminary—I. *French, beginning* [5] Mr. Frelin, Madame Bertin, Mr. Melom  
II. *French, second year's work* [3] I, II. Mr. Frelin and Madame Bertin  
IV. *Conversation* [2] Mr. Frelin and Madame Bertin  
The three courses above should be taken in the first two college years by students who begin work here. The following two courses are for those who entered with two years of French.  
III. *Advanced Grammar and Composition* [3] I, II. Mr. Frelin  
VI. *Advanced Conversation* [3] Professor Benton and Mr. Frelin  
V. *Classical French Writers* [3] I, II. Professor Benton  
This course is conducted by lectures and conversations, with some reading of modern authors, for the purpose of comparison.

- VII. *Nineteenth Century Literature* [3] I, II. Professor Benton  
 This course is conducted by lectures in French.  
 Courses V, VI and VII are required for a "major" credit, in addition to the elementary courses, and courses I, II and IV, or III and IV, for a "minor" credit.

## GEOLOGY.

- I. *General Geology* [3] I. Professor Hall
- II. *The Essentials of Physical Geography* [3] I. Professor Hall  
 A discussion of the principles of earth structure and description of the structural features of continents, with special reference to the earth's movements and the commercial activities of mankind.
- III. *Industrial Geography* [3] II. Professor Hall  
 (a) Influence of the physical structure of North America upon its resources and development.  
 (b) The industrial development of the countries of North America, and its relation to geographical conditions and environment.  
 (c) A study of industries, products and the growth of industrial countries. With excursions.  
 Open to those who have taken course I or II.
- IV. *Geography and Geology of Minnesota.* II. Professor Hall  
 (a) A review of the salient features of the geography of the state, embracing its climate, surface features, rivers, and lakes, with industrial conditions under development.  
 (b) An historical survey of the facts and principles of pre-Cambrian geology as exemplified in the geological features of the Lake Superior region and of Northern and Eastern Minnesota.  
 (c) A discussion of the geology and mineral resources of the state, particularly with reference to its deposits of clay, building stones and ores.  
 Open to all who have taken course I.  
 Students who desire either a "major" or a "minor" credit in Geology

should confer with the head of the department. Other courses in Geology and courses in Mineralogy are announced in the Bulletin of the College of Science, Literature and the Arts.

## GERMAN LANGUAGE AND LITERATURE.

The introductory courses in German are announced in the Bulletin of the College of Science, Literature and the Arts.

- VIII. *Advanced Conversation, Grammar and Composition* [2] I, II. Professor Schlenker and Assistant Professor Wilkin  
 Essays on assigned subjects; letter writing; oral exercises in German by means of discussions on every day subjects; debates, narration and the like. This course is intended as a preparation for course XVI and is open to students who have taken or are taking course VI. It is recommended that students shall have taken course V.
- IX. *German Literature of the Classic Period* [3] I, II. Professor Moore  
 First semester.—Goethe's *Faust*; its genesis; *Faust* legend; its treatment in literature before and since Goethe's time. Plan of Goethe's *Faust*; change in the order of the scenes; solution of the *Faust* problem in Part II. Lectures and collateral reading; essays by the class. Schiller's ballads and other representative poems of this period. German versification.  
 Second semester.—Reading and discussion of Lessing's more important critiques; the *Laocoon* and *Dramaturgie*. Open to those who have completed course VI or VII.



- X. *Modern Authors, German Literature of the Nineteenth Century* [3]  
 I, II. Professor Moore  
 First semester.—Romantic school and Junge Deutschland.  
 Second semester.—German literature since 1848.

- XVI. *Teachers' Course* [1] II. Professor Moore  
 This course is especially designed for students who intend to become teachers in the high schools.  
 A "minor" in German is given to students who complete courses VIII and IX; a "major" to those who complete, in addition, courses X and XVI.

## GREEK.

In addition to the preliminary courses, students who expect to teach Greek in the high school should take at least the following:

- IV. *Oratory* [3] I. Assistant Professor Savage  
 V. *Philosophy. Plato* [3] II. Assistant Professor Savage  
 VII. *Poetry, Tragedy, Aeschylus or Sophocles* [3] II. Professor Brooks  
 X. *Poetry, Epic (advanced course)* [3] II. Professor Hutchinson  
 XIV. *Greek Composition, (advanced course)* [1] I, II. Professor Hutchinson

All of the above courses are expected of candidates for teaching although in exceptional cases one or two might be omitted. A list of additional courses in Greek will be found in the Bulletin of the College of Science, Literature and the Arts.

## HISTORY.

- Preliminary—II. *English Constitutional History, to the Accession of Geo. I.*  
 I, II. Assistant Professor White and Miss Judson  
 V. *Constitutional History of the United States to 1840.*  
 I, II. Professor West

As to courses in history for the College of Education, students are urged to consult early with the head of the department as to the best choice among the various sequences offered. Students who desire a "major" credit should take at least four year-courses, one of which must be an intensive course, (see list below) and students who desire a "minor" credit should take at least three year-courses, in addition to the "Teachers' Course." The following are intensive courses:

- VII. *The Making of the Constitution of the United States* [3]  
 I, II. Professor West  
 VIII. *American History since 1789* [3] Professor West  
 IX. *Studies in American Biography* [3] I. Professor Anderson  
 X. *A Critical Study of Historical Masterpieces* [3] II. Professor Anderson  
 XI. *The History of American Diplomacy* [3] I. Professor Anderson  
 XII. *The History of European Diplomacy since 1789* [3]  
 II. Professor Anderson  
 XIII. *Colonial Expansion and Administration* [3] II. Professor West  
 XIV. *A Critical Study of Authorities of early New England History* [2]  
 I, II. Professor West  
 XV. *Historical Method and Bibliography* [2] II. Assistant Professor White  
 XXII. *Greek Political Institutions* [3] II. Assistant Professor Westermann  
 XVI. *A "Teachers' Course"* [1] II. Professor West  
 Designed for those who intend to teach history in the high schools. Other courses in History are announced in the Bulletin of the College of Science, Literature and the Arts.

## LATIN.

Students who expect to teach Latin are required to take courses I, II, III and IV, during the first two college years.

- V. *Ovid* [1] I and II. Professor Clark  
 Open to students who are taking courses III and IV. Translations of Ovid's *Fasti*, with a study of the religion and religious ceremonials of the Romans.
- VI. *Teachers' Course in Latin* [1] I. Professor Pike  
 Open to students having completed course I-IV. Explanation of indirect discourse; teachers' drill upon portions of Book I, Caesar's Gallic war; discussion of various problems connected with the teaching of Latin in the high schools.
- VII. *Advanced Course in Caesar* [2] I. Professor Pike  
 Open to students having completed course I-IV. Selections from Books V-VII of Gallic war, and from civil war. Latin composition. Students are advised to take courses VI and VII together.
- VIII. *Advanced Course in Virgil* [3] II. Professor Pike  
 Open to those having completed courses I-IV. Interpretation of selections from books VII-XII of Virgil's *Aeneid*. Students who desire a recommendation in Latin toward a teacher's certificate, must take courses V, VI and VII.
- IX. *Advanced Latin Composition* [2] II. Professor Pike  
 XIII. *Correspondence of Cicero* [2] I. Professor Clark  
 Additional courses in Latin are announced in the Bulletin of the College of Science, Literature and the Arts.

## MANUAL TRAINING.

These courses have been established for the benefit of teachers and others who desire to obtain instruction in the various lines of manual training.

For the work in Sloyd and manual training in woodwork, a carefully graded series of models has been chosen and will be taken up systematically. In the selection of these exercises the utilitarian idea has been prominent, and the construction of the models illustrates primarily fundamental principles and processes rather than mere exercises.

The aim of the course is to teach the proper use of the various tools and appliances. While facility of execution is gained by the use of the tools, the main object is to prepare the teacher for carrying out similar lines of work in his own school.

A course is also offered in ironwork in order to meet the requirements of those who wish to fit themselves to teach this subject, and also to provide instruction for teachers desiring to broaden their knowledge of the subject or to perfect themselves along special lines.

For those who choose to pursue any of the special lines of work indicated in the schedule, the course will be extended beyond the scope of the work given to the class, in so far as the qualifications of the student and the equipment will permit.

<i>I. Carpentry.</i>	<i>I.</i>
Wood working tools; a systematic course in the use of the saw, plane, gauge, paring chisel and kindred tools.	
<i>II. Sloyd.</i>	<i>II.</i>
Training in the use of carving tools in Sloyd, geometrical and chip carving.	
<i>III. Wood Turning.</i>	<i>I.</i>
Exercises in lathe work; use of gouge, chisel and other turning tools. Chuck work, ornamental turning.	
<i>IV. Pattern-making.</i>	<i>II.</i>
Construction of patterns, core prints, core boxes. Lectures and practice. Preparation required courses I, and III.	

V.	<p><i>Bench and Lathe Work.</i></p> <p>This embraces practice in wrought and cast iron with the hammer, chisel and file at the vise; also training in the use of file and scraper on wearing surfaces. Practice on the engine lathe, in connection with which are taught the elementary features of boring, turning and screw cutting. Lectures and practice.</p>	I.
VI.	<p><i>Machine Construction.</i></p> <p>Construction of machine parts, use of planer, shaper, drill press and milling machines, gear cutting. Lectures and practice. Preparation required, course IV.</p> <p>Each course in Manual Training calls for four double periods each week.</p> <p>A description of the equipment and fees for this work will be found in the Bulletin of the College of Engineering.</p>	II.

*Preliminary—III. Second Part Higher Algebra* [3]  
     I. Professor Bauer, Dr. Manchester, Dr. Dunkel and Mr. Shumway  
 IV. Trigonometry [3] II. Professor Bauer, Dr. Manchester, Dr. Dunkel and Mr. Shumway  
 V. Analytical Geometry [3] I. Professor Downey, Dr. Manchester  
 VI. Differential Calculus [3] II. Professor Downey, Dr. Manchester

The above courses should be taken in the first two college years by those who desire a "major" credit in mathematics. In addition they should take the following:

VII. <i>Integral Calculus</i> [3]	I. <i>Professor Downey</i>
XII. <i>Mathematical Pedagogy</i> [1]	II. <i>Professor Bauer</i>
<p>Students who desire a "major" credit will do well to elect also course X in the Theory of Equations. Students who desire a "minor" credit in Mathematics will take courses III, IV, and XII. Other courses in Mathematics will be found announced in the Bulletin of the College of Science, Literature and the Arts.</p>	

I. *Theory of Music-Harmony (thorough bass)* [2]  
I, II. Assistant Professor Scott

II. *Advanced Musical Theory-Counterpoint* [2]  
I, II. Professor Oberhoffer or Assistant Professor Scott

- III. *Musical Form* [2] II. Assistant Professor Scott  
A full description of the above course, with a statement of fees, will be found in the Bulletin of the College of Science, Literature and the Arts.

- V. *Teachers' Course*. (elementary) [1] I, II. Assistant Professor Scott  
This is an elementary course open to all students possessing a fair voice and a good ear and is given as a partial preparation for teaching music in the public schools. It includes the fundamentals of music and will aid students in their preparation to teach music in the advanced grammar grades and in the high schools. Especial attention will be given to chorus direction. One hour each week is given to this work and the course is planned to continue through three semesters, two in elementary music and the third a semester of harmony such as is announced in course I. The fee for this work will be four dollars for each semester; three credits for the complete course.

### PHILOSOPHY AND PSYCHOLOGY.

All students who expect to teach are advised to take the course in Introductory Psychology during the second college year. The course in Educational Psychology, announced also under the head of Education, is commended to all future teachers. In addition attention is called to the following courses:

- V. *Outline of Experimental Psychology*. II. Assistant Professor Miner  
III. *Experimental Psychology—the Senses* [3] I. Assistant Professor Miner  
IV. *Experimental Psychology—Higher Mental Processes* [3] II. Assistant Professor Miner  
VI. *Psychological Interpretations* [3] I. Assistant Professor Miner

All of the above courses have direct bearing upon the problems of education. The attention of future teachers is directed also to the courses in Logic, Ethics and the History of Philosophy, a full description of which will be found in the Bulletin of the College of Science, Literature and the Arts.

### PHYSICS.

- Preliminary—I. Mechanics, Properties of Matter, Heat, Sound* [6]  
I. Professor Jones and Assistants  
II. *Light, Electricity and Magnetism* [6]  
II. Professor Jones and Assistants  
The above courses are required of all students who expect a "minor" credit in physics.

- III. *Electrical Measurements*. I. Assistant Professor A. Zeleny  
VI. *Advanced Laboratory Work*. I. Professor J. Zeleny  
XVII. *Teachers' Course* [1] II. Professor Jones  
The above courses also are required of students who want a "major" credit in physics. Additional courses in this department will be found in the Bulletin of the College of Science, Literature and the Arts.

### PHYSICAL CULTURE.

#### FOR WOMEN.

*Preliminary*—The course in Physical Culture is offered to the women of the University as a regular part of their work in the freshman year, and may



be taken in any of the following years. The work consists of systematic exercises for the development of all parts of the body. Women pursuing this course are required to provide themselves with a gymnasium suit, consisting of a blouse waist and bloomers, with the regulation gymnasium shoes. All suits must be of black material.

It is a common observation that students often enter the University with an imperfect physical development because of an excessive use of some muscles, while others are weakened through disease. This occasions attitudes and movements that are unseemly in appearance and unhealthful in their general effect.

The purpose of this course is to develop a strong and symmetrical physique with a graceful and easy carriage.

A physical examination is made of each student and physical measurements are taken in the fall and again in the spring.

In addition to the regular class work, "sports and pastimes" are open to all young women of the University. These include basket ball, battle ball and numerous other ball games, and also running games, all of which tend to cultivate the play instinct and give the nerve stimulus that comes from natural play.

#### *Teachers' Course.*

*I, II. Miss Butner*

Students who expect to teach should have additional work in physical culture, even if they are not called upon to give special instruction in this line. "A Teachers' Course" is accordingly offered by Miss Butner to continue through two semesters, three times a week. This course is open to all students who have had two years of gymnasium work, and carries with it three credits, or one and one-half credits, for each of the two semesters. It will be conducted by means of lectures, readings and practice drills, bearing especially upon the calisthenic and gymnasium work of the elementary schools and the gymnasium work and games of the secondary schools.

### FOR MEN.

A well equipped gymnasium in charge of a professional Medical Director is open for the young men. The training and exercise is under the immediate oversight and authority of the Medical Director and is wholly with a view to the healthful physical development of the whole student body.

All young men are required to be examined by the Medical Director of physical culture upon registration and during the course as often as the indications of the physical condition may require.

The decision of the Director will be either:

1. Advisory, indicating what course of hygiene and exercise will best sustain and improve the health of the student, or
2. Mandatory, requiring the students to pursue the course of hygiene and physical exercise necessary for the proper care of health and the discharge of their duties as students.

Gymnasium work is required of all men in the freshman class, one hour per week (in two half-hour periods if the director so decides) throughout the year. The required work includes a course of lectures on personal hygiene, during the first term.

#### *Teachers' Course.*

*I, II. Dr. Cooke*

This course is designed to meet the demand for teachers trained in accordance with methods pursued at the University.

*Elementary Physiology*:—Lectures on circulation, respiration, digestion, assimilation, excretion, nerve impulses, etc.

*Personal Hygiene*:—Lectures on diet, exercise, bathing, sleep, clothing, etc.

*Applied Anatomy*:—Lectures and demonstrations on the action of muscles and the best methods of developing them.

*First aid to the injured*:—Lectures and demonstrations.

*Physical examinations and prescriptions of exercise*:—Demonstrations and practice in taking physical measurements and strength tests, and the application of special exercises for special parts of the body.

*Testing for normal vision and hearing.*

## FLOOR WORK.

*Free movements*:—Exercises without apparatus for accelerating the circulation, stretching the muscles, and correct carriage of the body.

*Calisthenics*:—Exercises with dumb-bells, Indian clubs, wands, bar-bells.

*Apparatus work*:—Class drills, buck, horse, parallel bars, horizontal bars—high and low, flying rings, mat work.

Exercises for the prevention and treatment of common deformities of school children.

Class evolutions and gymnastic games.

Suggestions on conducting a Gymnastic Exhibition.

## ATHLETICS.

Track and field events, both indoor and outdoor.

Suggestions on conducting an Athletic meet.

This course is given on Monday, Wednesday, and Friday, through two semesters, open to those who have completed all required gymnasium work, and students who successfully complete it, will receive three credits, one and one-half for each semester. An increasing demand for men competent to direct athletics in state high schools in connection with other teaching, makes this course of interest to young men who expect to teach.

## POLITICS.

*I. Elements of American Government.* *I or II. Professor Schaper*  
An elementary course on American Government intended as a preparation for an advanced course in Politics, and for teaching in secondary schools.

*II. Comparative Government.* *I. Professor Schaper*  
Open to all students who have taken course I.

*VII. Municipal Administration.* *I. Professor Schaper*  
A comparative study in modern city charters and the methods of administration.

*VIII. Theory of the State.* *II. Professor Schaper*  
Open to students who have taken course I.  
For a "minor" credit students should take courses I and II, for a "major" all of the above named courses. A fuller description of these courses, with an announcement of additional work in Politics, will be found in the Bulletin of the College of Science, Literature and the Arts.

## RHETORIC AND ELOCUTION.

## RHETORIC.

*Preliminary—I. Rhetoric.* *I, II.*  
This course should be taken in the first college year, or for it should be substituted, with the approval of the department, course II.

*II. Rhetoric.* *I, II. Assistant Professor Comstock*  
This course is open to sophomores of whom at entrance Rhetoric was not required.

*III. Literary Criticism.* *I, II. Professor Sanford*

*IV. Lectures upon the History of Art.* *II. Professor Sanford*

*VI. Advanced Rhetoric.* *I, II. Assistant Professor Comstock*



# ELOCUTION.

*Preliminary—VII. Reading.*

*I, II. Professor Sanford*

*VIII. The Physical Side of Vocal Expression.*

*I. Assistant Professor McDermott*

*IX. The Psychological Side of Vocal Expression.*

*II. Assistant Professor McDermott*

*XII. American Oratory.*

*I. Assistant Professor McDermott*

Students who desire a credit in Rhetoric should take courses III and IV. The attention of students expecting to teach English is directed, especially in the case of young men, to the courses in debate and oratory. A fuller description of these will be found in the Bulletin of the College of Science, Literature and the Arts.

# SOCIOLOGY.

Students who expect to teach will find some of these courses valuable in leading to a comprehension of the sociological phase of educational theory and organization and in supplementing their studies in general and educational psychology.

*I. Descriptive Sociology [3]*

*I. Professor Jenks*

*II. Elements of Sociology [3]*

*II. Professor Jenks*

*III. Social Pathology [3]*

*I. Professor Smith*

*IV. Social Theory [3]*

*I. Professor Smith*

*V. Social Groups [3]*

*I. Professor Smith*

*VI. The Study of Institutions [3]*

*I. Professor Smith*

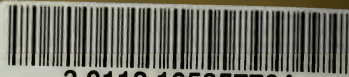
*VII. Anthropology [3]*

*I. Professor Jenks*

For other courses, see the Bulletin of the College of Science, Literature and the Arts.







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